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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/522,716	03/10/2000	Edward P. Cohen	07411.0005.NPUS00	6035

7590 09/21/2006

ATT: IP PROSECUTION
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EXAMINER	
HUMPHREY, DAVID HAROLD	
ART UNIT	**PAPER NUMBER**
1643	

DATE MAILED: 09/21/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/522,716	COHEN, EDWARD P.	
	Examiner	Art Unit	
	David Humphrey	1643	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 June 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *26 and 41-54* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *26 and 41-54* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Applicant's arguments and Amendments

1. Applicant's response and amendments to the claims was received on 06/29/2006.

2. Claims 26 and 41-54 are pending.

Claims 26 and 47 are amended.

Claims 26 and 41-54 are examined on the merits.

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Withdrawn Rejections

Claim Rejections – 35 U.S.C. § 112, 1st paragraph

4. The rejection of Claims 26, 41-46, and 54, under 35 U.S.C. 112, first paragraph, as containing new matter for the addition of "total" to the claims which now recite "total genomic DNA" is withdrawn due to Applicant's arguments.

Maintained Rejections

Claim Rejections - 35 USC § 103

5. The rejection of claims 26 and 41-54 under 35 U.S.C. §103(a) as being unpatentable over Schmidt et al. (U.S. Patent Publication 2002/0085997; effective filing date November 21, 1996) in view of Sun T et al. (Cancer Gene Ther. 2(3): 183-190, 1995) and Hiserodt et al. (U.S. Patent 6,277,368; effective filing date October 29, 1996 and patented on August 21, 2001) is maintained.

Applicant argues that there is no motivation to combine the three references and that the combination of the three references fails to teach or suggest the claimed invention. Applicant argues that Schmidt et al. teaches a tumor vaccine consisting of tumor cells whereas the instant invention does not encompass methods utilizing tumor cells as antigen presenting cells. Applicant argues that Schmidt teaches away from a method of transfection of antigen-presenting cells with DNA; see Remarks, page 10, lines 1-9. Applicant further argues that Sun does not teach an antigen-presenting cell coexpressing syngeneic and allogeneic determinants as presently claimed. Applicant argues that Hiserodt does not remedy the deficiencies of Schmidt and Sun. Thus, Applicants conclude that there is not motivation to combine the teachings of Schmidt, Sun, and Hiserodt.

Applicant's arguments have been carefully considered but are not found persuasive. While Applicant has characterized the differences between each of the individual references and the instant invention, it is the combined teachings of the cited references that must be considered. The test for obviousness is not whether the

features of a secondary reference or tertiary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981).

Applicant asserts that Schmidt et al. teach away from the instant invention by stating "in contrast to approaches in which the tumor antigen... is presented on the cell surface by the fact that it has been transfected with a DNA coding or the protein,... the intention is to provide a vaccine which triggers an efficient immune response while being simpler to manufacture." However, disclosed examples and preferred embodiments do not constitute a teaching away from a broader disclosure or nonpreferred embodiments. In re Susi, 440 F.2d 442, 169 USPQ 423 (CCPA 1971). "A known or obvious composition does not become patentable simply because it has been described as somewhat inferior to some other product for the same use." In re Gurley, 27 F.3d 551, 554, 31 USPQ2d 1130, 1132 (Fed. Cir. 1994). In addition, a reference may be relied upon for all that it would have reasonably suggested to one having ordinary skill the art, including nonpreferred embodiments. Merck & Co. v. Biocraft Laboratories, 874 F.2d 804, 10 USPQ2d 1843 (Fed. Cir.), cert. denied, 493 U.S. 975 (1989). See also Celeritas Technologies Ltd. v. Rockwell International Corp., 150 F.3d 1354, 1361, 47 USPQ2d 1516, 1522-23 (Fed. Cir.1998). In this case, the court held that the prior art anticipated the claims even though it taught away from the claimed invention. "The fact that a modem with a single carrier data signal is shown to be less

than optimal does not vitiate the fact that it is disclosed." Therefore, Applicant's arguments that Schmidt teaches away from a method of transfection of antigen-presenting cells with DNA is not persuasive since the method is disclosed and may constitute a non-preferred embodiment. See MPEP § 2123.

Applicant argues that Sun does not teach an antigen-presenting cell coexpressing syngeneic and allogeneic determinants as presently claimed. As stated in the previous Office action, Schmidt et al. teach MHC molecules that are syngeneic (or autologous) and allogeneic determinants. The combination of the Schmidt and Sun references teaches antigen-presenting cells coexpressing syngeneic and allogeneic determinants.

Applicant also argues that Schmidt does not disclose antigen-presenting cells selected from the group of professional antigen-presenting cells and facultative antigen-presenting cells. Applicant discloses that facultative antigen-presenting cells can include astrocytes, follicular cells, endothelium, and fibrobasts, see Specification, page 18, lines 16-30; page 19, lines 3-7. Both the references of Schmidt and Sun disclose the use of fibroblasts as antigen-presenting cells.

Schmidt et al. teach that instead of tumor cells, autologous fibroblasts, or fibroblasts cell lines which are either matched to the HLA-subtype of the patient or have been transfected with the corresponding MHC-I gene may be "charged" by the process according to the invention with one or more peptides derived from tumor antigens expressed by the tumor cells of the patients, see page 7, paragraph 85. Schmidt et al. also teach that instead of fibroblasts, dendritic cells (antigen presenting cells of the skin)

can be isolated from the patient and mixed with peptides derived from tumor antigens that bind to MHC-I or an MHC-II molecules of the patient, see page 7, paragraph 86, lines 1-8. Schmidt et al. further disclose the method wherein the tumor is a melanoma, see page 8, Example 2, paragraph 109.

Sun et al. teach cytokine-secreting fibroblasts transfected with sheared, unfractionated genomic DNA from different mouse neoplasms as a method to induce an antitumor immune response in the animal, see page183, right column, first complete paragraph lines 1-3, and the bridging sentence between pages 183 and 184. Sun et al. also teach that co-expression of allogeneic antigens augmented the cells' immunogenic properties as it protected the recipients against the growth of the modified cells, see page 189, right column, second complete paragraph, last sentence.

The teachings of Sun et al. encompass methods of using total genomic DNA as recited by newly amended claims 26 and 47. In order to overcome the 35 U.S.C. 112, 1st paragraph rejection above, Applicant argued that the method utilized for isolating total genomic DNA is the method of Wigler et al. (entitled "Biochemical transfer of single copy eukaryotic genes using total cellular DNA as donor"). Sun et al. also utilize the method of Wigler, see page 184, right column, Transfection of LM-IL2 Cells section, lines 1-3; References cited, page 190, reference 25. Therefore, Sun et al. teach the method of treating a tumor in an animal wherein the antigen presenting cells are transfected with total genomic DNA.

It would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made to combine the methods of Schmidt et al. and Sun et al. for

the purpose of generating a composition that induces an enhanced antitumor response in the animal in need thereof by using the peptides or genomic DNA from the tumor to stimulate T cells that specifically recognize the tumor cells.

Neither Schmidt et al. nor Sun et al. teach a method of cancer immunotherapy wherein the subjects are human. This deficiency is made up for in the teachings of Hiserodt et al.

Hiserodt et al. teach development of a cellular composition and method for using it in cancer immunotherapy, particularly in human patients, see Abstract, lines 1-3.

It would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made to combine the methods of Schmidt et al. and Sun et al. for the purpose of generating a composition that induces an enhanced antitumor response in a human since Hiserodt et al. teach that cancer remains a leading cause of death throughout the world, see column 1, Background, lines 23-25. Hiserodt et al. further teach that many solid tumors are resistant to other approaches such as surgery, radiotherapy and general chemotherapy, see column 1, Background, lines 25-31.

One of ordinary skill in the art would have been motivated with a reasonable expectation of success to combine the teachings of Schmidt et al., Sun et al., and Hiserodt et al. since Sun et al. teach that cytokine secreting antigen-presenting cells transfected with genomic DNA from neoplasms induce tumor-specific immune responses that prolong the lives of tumor-bearing animals, see page 183, title and Abstract. Sun et al. further teach that their data raise the possibility that a cell line altered previously for cytokine secretion (fibroblasts that are allogeneic to the tumor-

afflicted animal) may be readily modified to provide immunologic specificity for the neoplasms of individual cancer patients, see Sun et al., page 183, Abstract, last sentence.

Therefore, the invention as a whole was prima facie obvious to one of ordinary skill in the art at the time the invention was made, as evidenced by the references.

Conclusion

6. No claim is allowed.

7. No new ground(s) of rejection are presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to David Humphrey whose telephone number is (571) 272-5544. The examiner can normally be reached on Mon-Fri 8:30AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Larry Helms can be reached on (571) 272-0832. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

LARRY R. HELMS, PH.D.
SUPERVISORY PATENT EXAMINER

David Humphrey, Ph.D.

September 14, 2006